



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicant:

Douglas P. Brown and
Paul L. Sinclair

Serial No.: 09/608,976

Filed: June 30, 2000

Title: Method and Apparatus for
Presenting Query Plans

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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Group Art No.: 2171

Examiner: Te Y. Chen

Docket No: 9020
(NCR.0012US)

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REPLY BRIEF TRANSMITTAL

Sir:


Transmitted herewith in triplicate is the Reply Brief in response to the Examiner's Answer dated June 16, 2004.

The Commissioner is hereby authorized to charge any fees and/or credit any overpayment, which may be required to Deposit Account No. 50-1673 (9020). A duplicate copy of this sheet is enclosed.

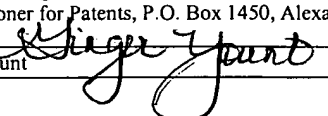
Respectfully submitted,

Date:

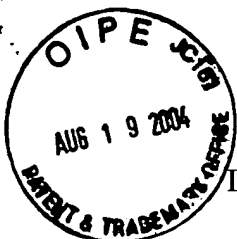
Aug. 16, 2004



Dan C. Hu, Reg. No. 40,025
TROP, PRUNER & HU, P.C.
8554 Katy Freeway, Suite 100
Houston, TX 77024
713/468-8880 [Telephone]
713/468-8883 [Facsimile]

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REPLY BRIEF

Dear Sir:

Applicant submits the following reply to the Examiner's Answer dated June 16, 2004.

I. SUMMARY OF THE INVENTION

In response to Applicant's Summary of the Invention set forth in the Appeal Brief, the Examiner noted "anomalies" in the Summary. The Examiner cited specifically to page 2, lines 1-7 of the Appeal Brief as being contrary to the specification at page 5, lines 4-9. Applicant respectfully disagrees with this assessment. The passage at page 5, lines 4-9, refers to the ability to store a query execution plan in a target system, with the execution plan being accessible by a visual explain and compare module 42 to graphically depict or display the execution plan. The portion of the Summary of the

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Invention cited by the Examiner paraphrases the language of claim 1. Claim 1 does not *exclude* the storage of a query execution plan. Thus, Applicant is confused why the discussion on page 5, lines 4-9, of the specification would be “contrary to the claimed invention,” as asserted by the Examiner. The cited passage of the specification merely describes an embodiment in which query execution plans can be stored in a target system – there is nothing in that cited passage that is inconsistent with what is recited in claim 1. Therefore, it is respectfully submitted that the Examiner’s objection to the Summary of the Invention on this basis is not well founded.

II. GROUPING OF CLAIMS

The Examiner disagreed with Appellant’s statement that claims 3, 15, 17, 19, and 34 are not part of any group. The Examiner’s basis for this disagreement is that claims 3, 15, 17, 19, and 34 “are dependent claims of their associated base groups which should stand or fall together with their respective base claims.” The reason Appellant excluded claims 3, 15, 17, 19, and 34 from any of the identified groups is that such claims recite features that are in addition to the base claims from which they depend from. Appellant included arguments in the Appeal Brief regarding why such claims are further allowable over the references of record. Therefore, the identification of claims 3, 15, 17, 19, and 34 as not being part of any group is proper.

III. ARGUMENTS

A. **Are Claims 1-6, 9-22, 30, 31, and 34-41 Obvious Over the Asserted Combination of Hallmark and MacLeod?**

In response to Appellant’s argument regarding the teachings of MacLeod and Hallmark, the Examiner asserted that it is not proper to show non-obviousness by attacking references individually. It is interesting to note that in the Examiner’s

obviousness rejection itself focused on individual references. For example, the Examiner stated that Hallmark discloses the determining act of claim 1, but that Hallmark does not disclose the depicting or displaying acts of claim 1. The Examiner then asserted that MacLeod teaches the displaying and depicting acts of claim 1. Examiner's Answer at 5. The Examiner then proceeded to provide a two-sentence explanation of the motivation for combining the two references. *Id.*

Appellant's response to the Examiner's final rejection was merely to point out *factual* errors made in the Examiner's final rejection. To the extent that the Examiner is erroneously asserting that a reference teaches an element that the reference does not, Appellant is entitled to point out errors in the assertions made by the Examiner.

On page 18 of the Examiner's Answer, the Examiner erroneously states that MacLeod depicts parallel execution of steps of a query execution plan in a graphical user interface. The Examiner cited to column 8, lines 29-49, and Fig. 6 of MacLeod as disclosing such a depiction. Fig. 6 of MacLeod depicts a user interface that shows graphical analysis of one specified query with multiple operations. MacLeod, 8:29-32. Although the display of the tree structure 210 of Fig. 6 in MacLeod represents an execution plan that has operation node icons 211 to represent different operations of the execution plan, depicting the tree structure 210 is not the same as depicting *parallel* execution of steps of the query execution plan in the graphical user interface. Because the Examiner's obviousness rejection is based on this mis-reading of MacLeod, the obviousness rejection necessarily fails. Contrary to the Examiner's assertion on page 6, Fig. 7 of MacLeod does not disclose displaying plural elements corresponding to concurrently executing plural steps on respective processors of a database system. Fig. 7

merely depicts the tree structure 210 displayed in Fig. 5 with additional cost statistics displayed as a result of operation node icon 211 selection. MacLeod, 9:5-8.

Because neither Hallmark nor MacLeod teaches depiction of parallel execution of steps of a query execution plan in a graphical user interface, and displaying plural elements corresponding to concurrently executing plural steps on respective processors of the parallel database system, their hypothetical combination does not teach or suggest the claimed invention. The *prima facie* case of obviousness fails for this reason.

What the Examiner has done is to use impermissible hindsight, with the benefit of the disclosure of the present invention, to piece together elements of prior art references, where no motivation or suggestion existed to combine such references.

It is well established law that “[t]he mere fact that the prior art could be so modified would not have made the modification **obvious** unless the prior art suggested the **desirability** of the modification.” *In re Gordon*, 733 F.2d 900, 902, 221 U.S.P.Q. 1125 (Fed. Cir. 1984) (emphasis added). As the Federal Circuit has stated, “virtually all [inventions] are combinations of old elements.” *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453 (Fed. Cir. 1998). “Most, if not all, inventions are combinations and mostly of old elements.” *Id.* “Therefore an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed

invention. Such an approach would be ‘an illogical and inappropriate process by which to determine patentability.’” *Id.*

There is absolutely no suggestion of any desirability or need by Hallmark of the ability to depict parallel execution of steps of the query execution plan in a graphical user interface. The only basis for the combination of MacLeod and Hallmark proposed by the Examiner is the teaching provided by the disclosure of the present invention. Absent the disclosure of the present invention, a person of ordinary skill in the art looking to the teachings of MacLeod and Hallmark would not have been motivated to modify the teachings of Hallmark to incorporate (and *modify*) the teachings of MacLeod to achieve the ability to depict parallel execution of a query execution plan in a graphical user interface. The *prima facie* case of obviousness fails for this additional reason. Therefore, independent claims 1 and 30, and all their dependent claims, are allowable over Hallmark and MacLeod.

With respect to Appellant’s arguments with respect to dependent claims 3, 35, and 34, Appellant refers to arguments presented in the Appeal Brief.

In response to Appellant’s arguments with respect to independent claim 11, the Examiner cited the same refrain of not showing non-obviousness by attacking a reference individually. Again, Appellant was responding to erroneous assertions with respect to the individual references made by the Examiner. Claim 11 recites determining a first execution plan of the query *under a first condition*, determining a second execution plan of the query *under a second condition*, and displaying the first and second execution plans (of the query under the first and second conditions, respectively) concurrently to enable comparison of the execution plans. In Appellant’s previous arguments, Appellant

was referring to specific elements recited in claim 11, not to elements from the specification. Clearly, neither Hallmark nor MacLeod teaches or even remotely suggests displaying a first execution plan (of a query under a first condition) and a second execution plan (of a query under a second condition) concurrently to enable comparison of the execution plans.

The Examiner directed attention to “the parent/child source tree structure shown by MacLeod at Figures 6 and 7 as well as the description at col. 6, lines 11-54 disclosed by Hallmark, where the tree structure satisfy [sic] the claimed element of displaying first and second execution plans via the hierarchical structure of the icon-tree [e.g., see col. 11, lines 20-25, MacLeod).” Examiner’s Answer at 22. The tree structures depicted in Figs. 6 and 7 of MacLeod clearly do not show displaying first and second execution plans concurrently to enable comparison of execution plans. The col. 6, lines 11-54, passage of Hallmark noted by the Examiner refers to a sort/merge join of two tables (an employee table and a department table). There is absolutely no suggestion or indication whatsoever in this passage of displaying first and second execution plans concurrently to enable comparison of execution plans.

The Examiner also referred to the teaching at col. 6, lines 1-54, of Hallmark relating to using a master/slave thread to control data flow operators of a row source tree in a concurrent database processing environment. Examiner’s Answer at 22. This teaching has nothing to do with displaying first and second execution plans concurrently to enable comparison of execution plans.

Therefore, even if the references can be properly combined, the combination of references does not teach or suggest the claimed invention. Moreover, as discussed

above, and in Appellant's Appeal Brief, there simply was no motivation or suggestion to combine the teachings of MacLeod and Hallmark.

With respect to dependent claims 15, 17, 19, 21, and 38, Appellant refers to Appellant's arguments presented in the Appeal Brief. Moreover, in response to Appellant's arguments with respect to dependent claim 17 in the Appeal Brief, the Examiner cited to slave set 1 and slave set 2 in Fig. 10B of Hallmark as teaching determining a first execution plan for a query in cooperation with a first version of a software module of a parallel database system, and determining a second execution plan for a query in cooperation with a second version of the software module of the parallel database system. Appellant notes that slave set A and slave set B are shown in Fig. 3C of Hallmark, with slave set B including sort/merge join operators 324A-324C, and slave set A including table scan operators 330A-330C and table scan operators 344A-344C. These slave sets refer to different operators, *not* to different versions of a software module.

In response to Appellant's argument with respect to claim 19 in the Appeal Brief, the Examiner referred to slave execution plan set 1 and slave execution plan set 2 as teaching determining first and second execution plans for the query in a system having first and second arrangements, respectively. The different slave sets merely refer to different operators, and have nothing to do with arrangements of the system in which the execution plan of a query can be determined.

With respect to Appellant's arguments with respect to claim 21, the Examiner responded by stating that "claim 21 is depend [sic] on claim 20 and claim 22 is depend on claim 21, [and] Appellant arguments do not comply with 37 C.F.R. 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present

in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the invention avoids such references or objections.” Examiner’s Answer at 25. The Examiner’s comment that claim 21 depends from claim 20, and claim 22 depends from claim 21, is accurate. However, the Examiner is not accurate in stating that Appellant did not identify how the claim distinguishes over the cited references. In Appellant’s arguments, Appellant specifically pointed to the fact that the passages of MacLeod and Hallmark cited by the Examiner do not teach or suggest determining a first execution plan that involves a table having a first content, and determining a second execution plan that involves a table having a second content. Appellant was pointing to a deficiency in the Examiner’s obviousness rejection. The Examiner has the burden of establishing a *prima facie* case of obviousness against each of the claims, which the Examiner has clearly failed to do.

B. Is Claim 23 Obvious Over the Asserted Combination of MacLeod and Reiner, and Are Claims 24-27 and 29, Which Depend from Claim 23, Obvious Over the Asserted Combination of MacLeod, Reiner and Carino?

In response to Appellant’s arguments with respect to claim 23, the Examiner has not provided any new arguments with respect to why claim 23 would be obvious over the asserted combination of Hallmark, MacLeod, and Reiner. The passages of Reiner that refer to emulating a calling sequence and behavior of a set of routines (UPI routines) and emulating the result of a query, is not the same as emulating an environment of a target database system in which a parallel database system is implemented.

Also, as previously stated by the Appellant, the POPI routines of Reiner behave as a client with respect to additional servers to which the POPI routines connect from parallel threads to process parallel subqueries. Such a behavior of the POPI routines of Reiner does not constitute the emulation of an environment of a target implementing a

parallel database system. Therefore, even if MacLeod and Reiner can be properly combined, the hypothetical combination of the references fails to teach or suggest all elements of claim 23.

IV. CONCLUSION

In view of the foregoing, it is respectfully requested that the final rejection be reversed and the pending claims be allowed to issue.

Respectfully submitted,

Date: _____

Aug. 16, 2004



Dan C. Hu, Reg. No. 40,025
Trop, Pruner & Hu, P.C.
8554 Katy Freeway, Suite 100
Houston, TX 77024
(713) 468-8880 [Phone]
(713) 468-8883 [Fax]